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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,978	05/31/2002	Paul R. Granfors	15-XD-6085	3808
23446	7590	04/16/2004	EXAMINER	
MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			KAO, CHIH CHENG G	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/063,978

Applicant(s)

GRANFORS ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 09 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 2, and 6 are objected to because of the following informalities, which appear to be minor draft errors creating lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following suggestions may obviate their respective objections: (claim 1, line 10, “the contents of”; deleting “the”), (claim 2, line 3, “said first and second”; deleting “said”), (claim 6, line 4, “said first mode”; replacing “said” with - -a- -), and (claim 6, line 7, “said second mode”; replacing “said” with - -a- -).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 7, 9, 16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schreiner (US Patent 5617461).

3. Regarding claims 1 and 16, Schreiner discloses an x-ray system and method (Title) comprising an x-ray source (Fig. 1), a detector comprising detector elements in rows and columns acquiring and storing levels of charge (Fig. 1, #5, and col. 3, lines 14-19), and an image processor including a first offset image memory and a second offset image memory for storing (Fig. 3, #20-23), wherein the image processor applies contents of the image memories to incoming image data depending upon the current mode of operation (Fig. 2, #14 and 16, and Fig. 3, #14, 20-23, and 38).

4. Regarding claims 3, 7, 18, and 20, Schreiner further discloses a mode using a portion or combination of the detector elements (Fig. 1, #5).

5. Regarding claim 9, Schreiner further discloses identifying when the detector is exposed to x-rays and choosing an offset image memory based on a mode (Fig. 3, #22), said image processor using the offset image to process an incoming x-ray image (Fig. 2, #14-16).

6. Claims 1, 3-5, 7, 9-11, 13, 14, 16, 18, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakaguchi et al. (US Patent 6453008).

7. Regarding claims 1 and 16, Sakaguchi et al. discloses an x-ray system and method comprising an x-ray source (col. 6, lines 25-30), a detector comprising detector elements in rows and columns acquiring and storing levels of charge (Fig. 3), and an image processor including a

Art Unit: 2882

first offset image memory and a second offset image memory for storing (Fig. 3, Q3 and #4, and col. 8, lines 39-53), wherein the image processor applies contents of the image memories to incoming image data depending upon the current mode of operation (Fig. 3, #11).

8. Regarding claim 10, Sakaguchi et al. discloses a method comprising selecting a first mode (col. 8, line 45) identifying detector elements in an x-ray detector, selecting a first offset image (col. 16, lines 9-18) corresponding to a first mode of operation from a plurality of offset images corresponding to a plurality of modes (col. 8, lines 39-53), exposing the detector to a radiation source (col. 6, lines 25-30), acquiring a first and second image representative of levels of charge (col. 6, line 28, "computer tomography"), and utilizing the first offset image to process the first and second images (Fig. 3, #11).

9. Regarding claims 3, 7, 13, 14, 18, and 20, Sakaguchi et al. further discloses using a portion or combination of the detector elements (col. 10, lines 17-23).

10. Regarding claim 4, Sakaguchi et al. further discloses an operator interface for choosing a mode (col. 9, lines 58-62) and a system controller for choosing one of the image memories based on the mode (col. 14, lines 36-43).

11. Regarding claims 5 and 9, Sakaguchi et al. further discloses a system controller choosing an offset image memory based on a mode and an image processor subtracting the offset image from an incoming image for processing (col. 16, line 9).

12. Regarding claim 11, Sakaguchi et al. further discloses selecting a second mode offset image different from the first mode and processing (col. 16, lines 9-18) the second image with the second offset image (Fig. 3, #11), the first and second images comprising successive images (col.6, lines 25-30).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 2, 5, 6, 8, 17, and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Schreiner as applied to claims 1 and 16 above, and further in view of Granfors et al. (US Patent 5452338).

14. Regarding claims 2, 6, 8, 17, and 19, Schreiner discloses a system and method as recited above. Schreiner further discloses a first and second offset image when the detector is not exposed to x-rays (Fig. 3, #20 and 21).

However, Schreiner does not disclose a recursive filter updating offset images when the detector is not exposed to x-rays.

Granfors et al. teaches a recursive filter updating offset images when the detector is not exposed to x-rays (Abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system and method of Schreiner with the filter of Granfors et al., since one would be motivated to incorporate this to better provide a means for updating the offset image (col. 2, lines 15-20) as shown by Granfors et al.

15. Regarding claim 5, Schreiner discloses a system as recited above.

However, Schreiner does not disclose subtracting an offset image from an incoming image.

Granfors et al. teaches subtracting an offset image from an incoming image (Fig. 1, #22).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Schreiner with the subtraction of Granfors et al., since one would be motivated to incorporate this to better provide a means for updating the offset image (col. 2, lines 15-20) as shown by Granfors et al.

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being obvious over Schreiner as applied to claim 1 above, and further in view of Ivan et al. (US Patent 5877501).

Schreiner discloses a system as recited above.

However, Schreiner does not seem to specifically disclose an operator interface for choosing a mode of operation and a system controller identifying the mode of operation and choosing based on said mode of operation.

Ivan et al. teaches an operator interface for choosing a mode of operation and a system controller identifying the mode of operation and choosing based on said mode of operation (col. 4, lines 16-19).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Schreiner with the operator interface of Ivan et al., since one would be motivated to incorporate this operator interface or power switch to better save energy when turning off and on the image detector as implied from Ivan et al. (col. 4, lines 16-19).

17. Claims 2, 6, 8, 12, 15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Sakaguchi et al. as applied to claims 10 and 16 above, and further in view of Granfors et al.

Sakaguchi et al. discloses a method as recited above.

However, Sakaguchi et al. does not disclose acquiring a series of dark images after an x-ray exposure has terminated and recursively filtering the dark images to create an updated offset image.

Granfors et al. teaches acquiring a series of dark images (Fig. 1, #16) after an x-ray exposure has terminated (Fig. 2, #32, 34, 36, and 38) and recursively filtering the dark images to create an updated offset image (Abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Sakaguchi et al. with the acquiring and filtering of Granfors et al., since one would be motivated to incorporate this to better provide a corrected image (Abstract) as shown by Granfors et al.



***Response to Arguments***

18. Objections to the drawings in the Office Action mailed 10/03/03 have been withdrawn in light of the amendments filed 12/19/03.

19. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Granfors et al. still applies for its teaching of recursive filtering.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2882

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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**EDWARD J. GLICK**  
SUPERVISORY PATENT EXAMINER